

## Scientific Inquiry

**3-1 The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.**

### **3-1.6 Infer meaning from data communicated in graphs, tables, and diagrams.**

**Taxonomy Level:** 2.5-B Understand Conceptual Knowledge

**Previous/Future knowledge:** In kindergarten (K-1.3), students predicted and explained information or events based on observation or previous experience. In 2<sup>nd</sup> grade (2-1.4), students inferred explanations regarding scientific observations and experiences. In 4<sup>th</sup> grade (4-1.6), students will construct and interpret diagrams, tables, and graphs made from recorded measurements and observations. In 7<sup>th</sup> grade (7-1.6), students will critique a conclusion drawn from a scientific investigation. In 8<sup>th</sup> grade (8-1.3), students will construct explanations and conclusions from interpretations of data obtained during a controlled scientific investigation.

**It is essential for students to *infer***, or draw conclusions, from data communicated in tables, graphs, and diagrams.

- Data collected in an investigation can be represented on a graph, table, or diagram.
  - A table shows collected data in chart form. Tables are made of columns and rows. Categories are listed in the first (left) column and data collected are listed in columns to the right of the category column.
  - A graph (bar, pictograph) shows compared data.
  - A diagram is a graphic representation of an observation, relationship, comparison, or conclusion.
- Inferences can be made about the information in these graphs, tables, or diagrams.
- An *inference* is an explanation made without having actually observed the object or event.
- Inferences are based on data, previous experience, or prior knowledge.
- Patterns observed from the information presented in the graph, table, or diagram can be used to help make the inference.
- More than one inference can be made from the same graph, table, or diagram.

**It is not essential for students to** interpret other types of graphs.

#### **Assessment Guidelines:**

The objective of this indicator is to *infer* meaning from data communicated in graphs, tables, and diagrams; therefore, the primary focus of assessment should be to give explanations about data presented on a graph, table, or diagram. However, appropriate assessments should also require students to *predict* using collected data; *identify* patterns observed in graphs, tables, or diagrams; or *interpret* data communicated in graphs, tables, or diagrams.